THAT WHICH IS CLAIMED IS:

1. A method of reducing intermodulation distortion within a linear amplifier comprising the steps of:

sampling the output of a multiple carrier linear amplifier radio frequency signal; and

detecting the sampled signal at frequency increments and quantizing and nulling the intermodulation distortion.

2. A method according to Claim 1, and further comprising the step of determining active sub-bands by scanning a plurality of carriers corresponding to frequency increments above a threshold, and establishing the carrier as an active sub-band.

3. A method according to Claim 2, and further comprising the steps of generating a local oscillator signal having predetermined frequency increments $f_0 \ldots f_i$ situated in at least one of the sub-bands.

4. A method according to Claim 3, and further comprising the steps of mixing the sampled radio frequency signal with the local oscillator signal to target the centers of the multiple carriers and generate an intermediate frequency signal.

5. A method according to Claim 4, and further comprising the step of filtering the resultant intermediate frequency signal before detecting and digitizing for quantization.

6. A method according to Claim 5, and further comprising the step of stepping local oscillator frequency increments f_o to f_i, and comparing the outputs of the stepping operation to identify sub-bands.

7. A method according to Claim 6, and further comprising the step of determining which frequencies are active in which sub-bands and adjusting the local oscillator frequency based on the determined active frequencies.

8. A method of reducing intermodulation distortion within a linear amplifier comprising the steps of:

sampling the output of a multiple carrier linear amplifier radio frequency signal;

generating a local oscillator signal having predetermined frequency increments $f_o \ldots f_i$ situated in at least one of predetermined sub-bands;

mixing the sampled radio frequency signal with the local oscillator signal to target the centers of the multiple carriers and generate an intermediate frequency signal; and

detecting and digitizing the intermediate frequency signal for quantization and nulling of the intermodulation distortion.

9. A method according to Claim 8, and further comprising the step of filtering the resultant intermediate frequency signal before detecting and digitizing for quantization.

10. A method according to Claim 8, and further comprising the step of stepping local oscillator frequency increments f_o to f_i, and comparing the outputs of the stepping operation to identify sub-bands.

11. A method according to Claim 8, and further comprising the step of determining which frequencies are active in which sub-bands and adjusting the local oscillator frequency based on the determined active frequencies.

12. A method according to Claim 8, and further comprising the step of generating frequency increments $f_o \ldots f_{11}$ in 5 MHz increments.

13. A method according to Claim 8, and further comprising the step of generating the radio frequency signal in a radio frequency range from about 2110 to about 2170 MHz.

14. A method according to Claim 8, and further comprising the step of dividing the radio frequency signal into three sub-bands having up to four carriers.

15. A method according to Claim 8, and further comprising the step of detecting the intermediate frequency signal within a sample and hold circuit having a detector operative therewith.

16. A method of reducing intermodulation distortion within a linear amplifier comprising the steps of:

sampling the output of a multiple carrier linear amplifier radio frequency signal;

generating a local oscillator signal having predetermined frequency increments $f_o...f_i$ situated in at least one of predetermined sub-bands;

mixing the sampled radio frequency signal with the local oscillator signal for targeting the centers of the multiple carriers and generating an intermediate frequency signal, said step of mixing further comprising the steps of stepping local oscillator frequency increments f_o to f_i, comparing the outputs of the stepping operation to identify sub-bands, determining which sub-bands are active, and adjusting local oscillator frequency based on the determined active frequencies.

17. A method according to Claim 16, and further comprising the step of detecting and digitizing the intermediate frequency signal for quantization and nulling of the intermodulation distortion.

18. A method according to Claim 17, and further comprising the step of filtering the resultant intermediate frequency signal before detecting and digitizing for quantization.

19. A method according to Claim 16, and further comprising the step of generating frequency increments $f_o...f_{11}$ in 5 MHz increments.

20. A method according to Claim 16, and further comprising the step of generating the radio frequency signal in a radio frequency range from about 2110 to about 2170 MHz.

21. A method according to Claim 16, and further comprising the step of dividing the radio frequency signal into three sub-bands, each sub-band having up to four carriers.

22. A method according to Claim 16, and further comprising the step of detecting the intermediate frequency signal within a sample and hold circuit having a detector operative therewith.

23. A multiple carrier linear amplifier circuit having reduced intermodulation distortion comprising:

balanced amplifier circuits for processing a multiple carrier linear amplifier radio frequency signal; and

an intermodulation distortion identification and quantization circuit connected to said balanced amplifier circuits for receiving a sampled radio frequency signal; and

a detector circuit for detecting the sampled frequency signal for quantization and nulling the intermodulation distortion.

24. An amplifier according to Claim 23, wherein said detector and digitizing circuit further comprises a sample and hold circuit.

25. An amplifier according to Claim 24, and further comprising a synthesizer circuit for generating a local oscillator signal having predetermined frequency increments $f_0 \ldots f_i$ situated within one of predetermined sub-bands and a mixer for mixing the sampled radio frequency signal with the local

oscillator signal and targeting the centers of multiple carriers.